

Communications Center

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Walter L. Morgan

I am a Senior Consultant at the Communications Center. I have a degree in Electrical Engineering and have been involved in satellites and communications continuously since 1958. I have been employed by RCA at its David Sarnoff Research Laboratory and its Space Center. I was the Senior Staff Scientist at COMSAT Laboratories. Since 1980 I have been a Consultant at the Communications Center which serves national and international communications organizations.

I am the author of over 100 papers and a co-author of the *Communications Satellite Handbook* (1989), a textbook (1993) and the best-selling book on VSATs (1988).

I have been made a Fellow of the AIAA, a Fellow of the BIS and a Senior Member of the IEEE.

The Communications Center was asked to provide current information on the amount of unused or only partially used capacity in existing satellites.

The Communications Center provides certain clients with a quarterly review of the over 500 transponders that serve the United States from the domestic FSS satellites. This report is based on observations made using the Center's own receiving earth stations. This data collection is

pertinent because it is 1) of the same FSS service as the Hughes Spaceway Application and 2) the more than 500 transponders provided a statistically significant sample.

Based on my December 1993 observations of the C and Ku-band fixed satellite service transponders that serve the United States, 11.7% of the C-band and 23.2% of the Ku-band capacity does not appear to be in revenue service. In addition, 19.4% of the C-band and 26.7% of the Ku-band capacity is used only occasionally. Collectively, these two categories represent 10.773 GHz of available capacity in the geosynchronous satellites in operation at that time. If this were expressed in terms that are directly comparative to the Hughes Spaceway Application (that is to include guard bands) the quantity would be in excess of 12 GHz.¹

A total of 31 Ku-band transponders are used for VSAT and Omnitrac services. This represents a total transponder capacity of 1,688 MHz (or 14.6% of the available Ku-band bandwidth). VSAT services have been available since 1985. A direct comparison with the Spaceway filing is 1,890 MHz. The Hughes Spaceway Application proposes to add approximately 11,500 MHz of VSAT capacity.

January 7, 1994

¹ Subsequent to these observations the Telstar 401 satellite was launched. This adds approximately 2 GHz of new capacity.

Certificate of Service

I, Owen J. McGovern, hereby certify that the foregoing "Motion to Proceed" was delivered by hand on January 26, 1995 to the following:

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